

Highly Pathogenic Avian Influenza

The US Outbreak



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North Carolina Department of Agriculture and Consumer Services

Veterinary Division/Emergency Programs
Division/Environmental Programs:

Preparing for and Responding to Highly Pathogenic
Avian Influenza (HPAI) in North Carolina

Twelfth One Medicine Symposium
December 10, 2015

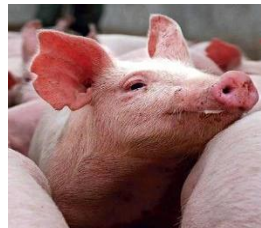
R. Douglas Meckes, D.V.M.
North Carolina State Veterinarian

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The Nation's Agriculture and Food Sector

- Recognized and a Critical Infrastructure and Key Resource
- 8-14% of GDP
- 8-12% of the Work Force
- Highly Vulnerable – the Farm to Fork Continuum
- Concentrated Animal Feeding Operations
- High Daily Transit Volume – 1,000,000 pigs, 500,000 cattle and 25 million birds on the road every day

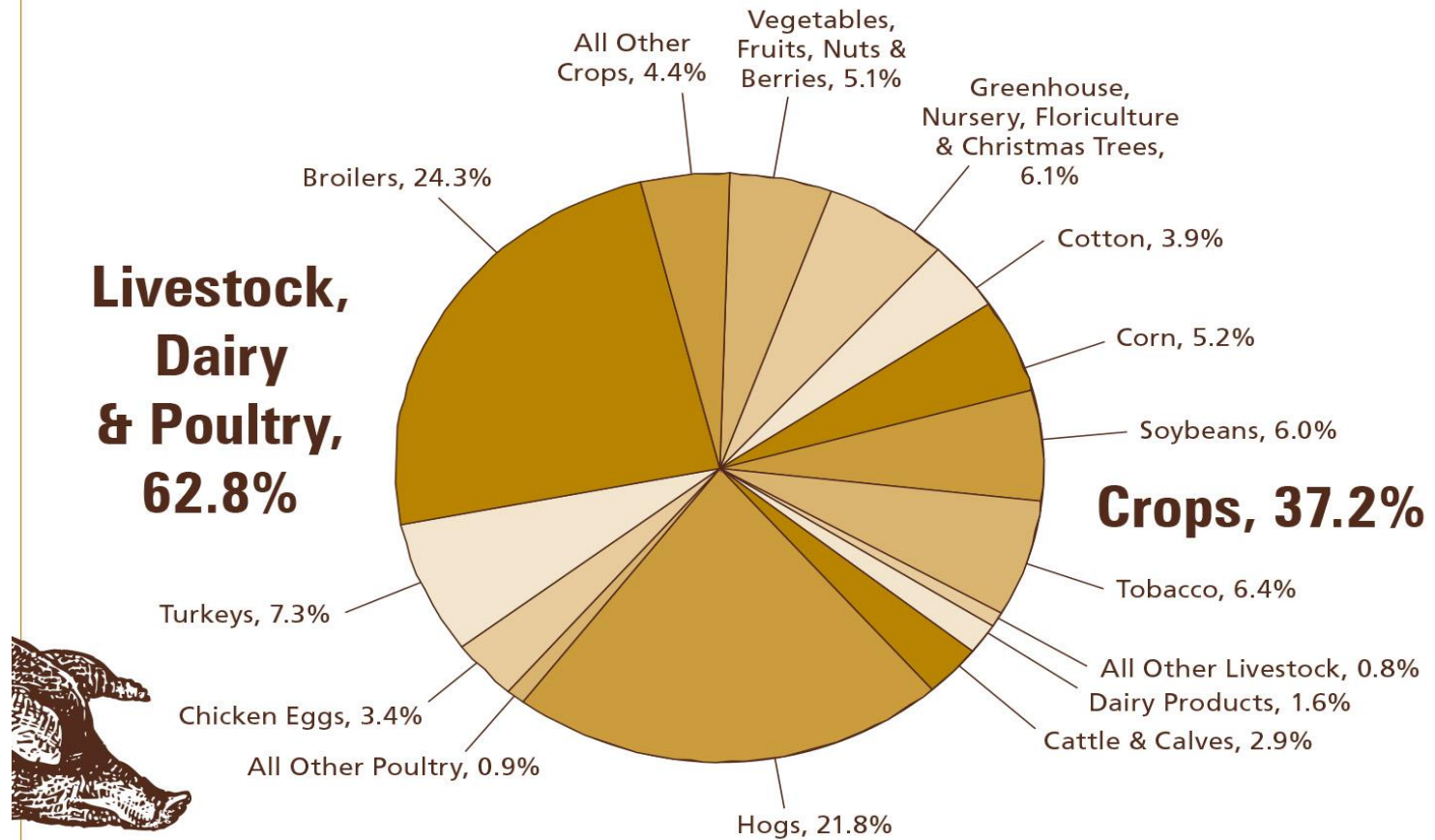


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SOURCE OF FARM CASH RECEIPTS, 2012

\$11,706,602,000

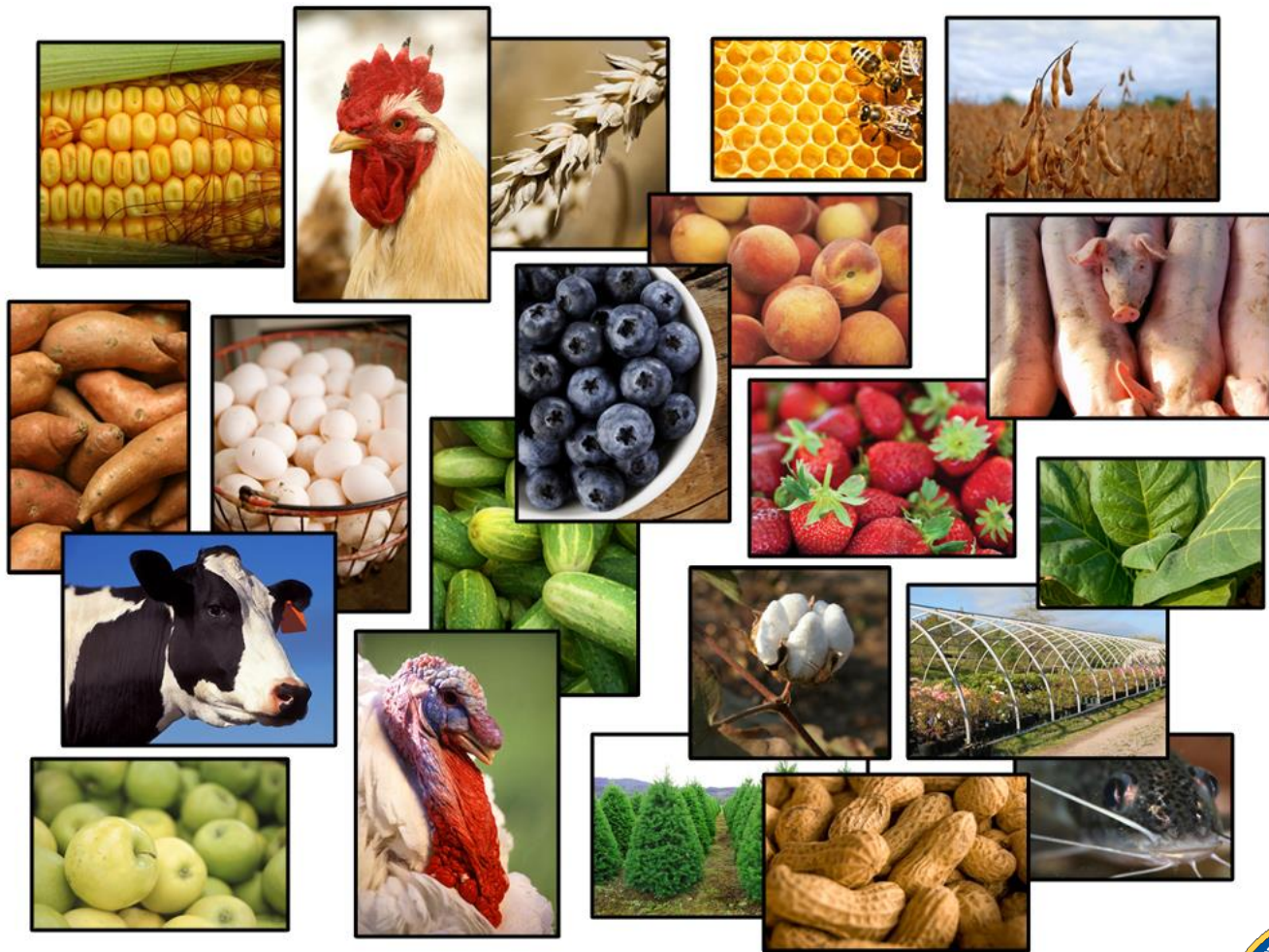


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The Importance of NC Agriculture

N.C. is the fourth most diverse state agriculturally in the United States



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Where We Began:

- Three HPAI H5 viruses have been detected in the current U.S. outbreak since December 2014 – H5N8, H5N2, and H5N1.
- The HPAI H5N8 virus circulating in the U.S. is of Eurasian (EA) lineage and is similar to the H5N8 first detected in South Korea in January 2014; the virus has since been identified in Europe and North America.
- The HPAI H5N2 is a reassortant of the H5N8 EA and North American (AM) lineage viruses. This H5N2 is similar to the strain found in British Columbia in the December 2014 Canadian outbreak and subsequently infected flocks throughout the U.S.
- The novel HPAI H5N1 detected in Washington state in January 2015 is not the same H5N1 that caused human infections in Asia, Europe and Africa.



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Where We Are:

- Since the current HPAI outbreak started in December 2014, 21 States have had HPAI detections in commercial premises, backyard flocks, captive wild birds and/or wild birds (AR, CA, IA, ID, IN, KS, KY, MI, MN, MO, MT, NE, ND, NM, NV, OR, SD, UT, WA, WI, WY).
- There have been 232 premises positive for HPAI (211 commercial, 21 backyard). Commercial premises with HPAI have been found in nine States: MN-109, IA-71, SD-10, WI-9, NE-5, CA-2, MO-2, ND-2, and AR-1.
- Approximately 49.6 million commercial birds are affected and have been depopulated or are pending depopulation: approximately 7.5 million turkeys and approximately 42.1 million chickens. This represents 3.16% of U.S. annual turkey production (7.46% of average U.S. turkey inventory), 10.01% of U.S. average layer inventory, and 6.33% of U.S. average pullet inventory.
- Of the 211 commercial premises affected, cleaning and disinfection has been completed on 205 premises, 6 are fallow, and 208 are eligible to restock.



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Where We Are:

- On September 4, 2015, the Secretary transferred approximately \$291 million in Commodity Credit Corporation (CCC) funds to APHIS for HPAI activities. This is in addition to emergency funding in the amount of \$698 million previously made available to respond to HPAI: \$851,961,363 has been paid out for response activities, indemnity, and contractors, \$200,728,722 has been committed for indemnity for appraised flocks; and, of this, \$199,984,579 in total indemnity has been paid to date.
- Federal responders, including contracted personnel, number approximately 2,550. This includes the following: 231 APHIS employees deployed to field; approximately 155 State personnel; and approximately 2,182 contractors.
- No new premises have been found positive for HPAI since the national situation report dated June 18, 2015. 😊
- Cleaning and disinfection activities are complete on all premises.
- Over 7,100 permits for movement were authorized.



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What Are Implications?

- HPAI has had a profound economic impact. By late June, 52 countries and the European Union had implemented import restrictions on U.S. poultry and poultry products. While generally limited to counties or states, a number of countries, including China, Russia and South Korea, have banned imports of all poultry products from the entire country.
- An estimated 18% of all poultry products are exported, valued at \$3598.7 million.
- Economic losses as of in Minnesota were estimated at \$647 million, Losses in Iowa are estimated to be \$1.2 billion. Every million in direct losses leads to an overall loss of \$1.8 million and includes \$450,00 in lost employee wages.
- Iowa lost 31.5 million birds in its egg laying and pullet operations. It will take another 15 to 16 months to bring those barns back to production at pre-outbreak levels. Minnesota lost around 9 million turkeys during the outbreak. Added to Iowa's toll, the two states account for about 40 million of the 50 million birds lost nationwide due to the outbreak.



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What Happened?

- USDA has conducted initial epidemiological investigations on more than 80 farms to determine how the H5N2 spread from the Pacific Northwest to the Midwestern states.
- They suggest wild birds likely introduced the virus to farms but lapses in biosecurity and other environmental factors allowed the virus to spread.
- Shared equipment, vehicle movements on and off the premises without cleaning and disinfection, wild birds and rodents inside poultry houses and employee movements were deemed significant among biosecurity breaches.
- Chief among the environmental factors was the wind.
- **BioSecurity, BioSecurity, BioSecurity**

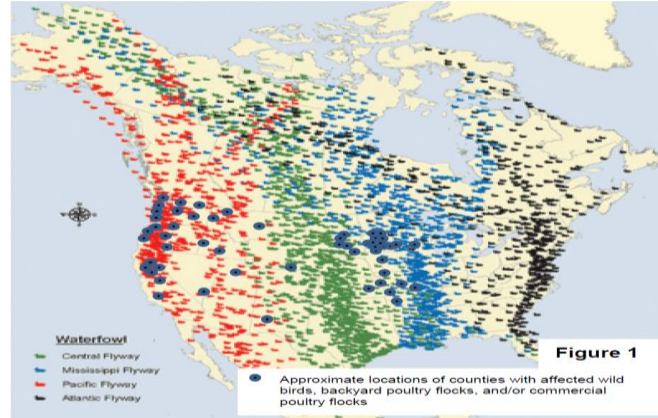


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What's Next?

US FLYWAYS



- A publication in the April 2015 *Journal of Virology* indicates that waterfowl from multiple global flyways congregated during the summer of 2014 in northern Russia and carried the H5N8 HPAI viruses back south into North America, Europe and East Asia.
- The same phenomenon could occur this year with H5N2 HPAI – the mixing of birds from multiple flyways in the North American breeding grounds could promote the migration of the virus down different flyways this fall, potentially into the poultry-dense Atlantic Flyway.



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What's the possible impact for NC?



BROILERS

(chickens raised for meat production) are the **top ag commodity** in the state, representing more than \$2.8 billion in cash receipts in 2012. 795 million broilers were raised in 2013.

North Carolina ranks No. 3 in the nation in poultry and egg cash receipts.

N.C.'s poultry industry is worth more than \$4.1 billion in cash receipts alone.



TURKEYS

In 2013 North Carolina growers raised **28.5 million** turkeys, worth more than \$848 million. North Carolina is the **third largest** turkey producing state in the nation.



EGGS

In 2013, the N.C. egg industry contributed more than \$392 million to the state's economy. More than 13 million layers produced more than **1.8 billion eggs**.



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What's the possible impact for NC?

North Carolina has Nearly 4500 Commercial Poultry Farms

- Most production types represented—NPIP Certified
 - Primary Chicken Breeders
 - Multiplier Turkey Breeders and Multiplier Broiler Breeders
 - Meat Turkeys and Broilers
 - Table Egg Pullets and Layers
 - A few Live Bird Market Production Units

North Carolina has more than 8500 Backyard Flocks Documented in Database

- Approximately 520 NPIP active flocks



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HPAI Response and Preparedness

Sarah J Mason, DVM, PhD

Director Animal Health Programs, Poultry

NCDA&CS

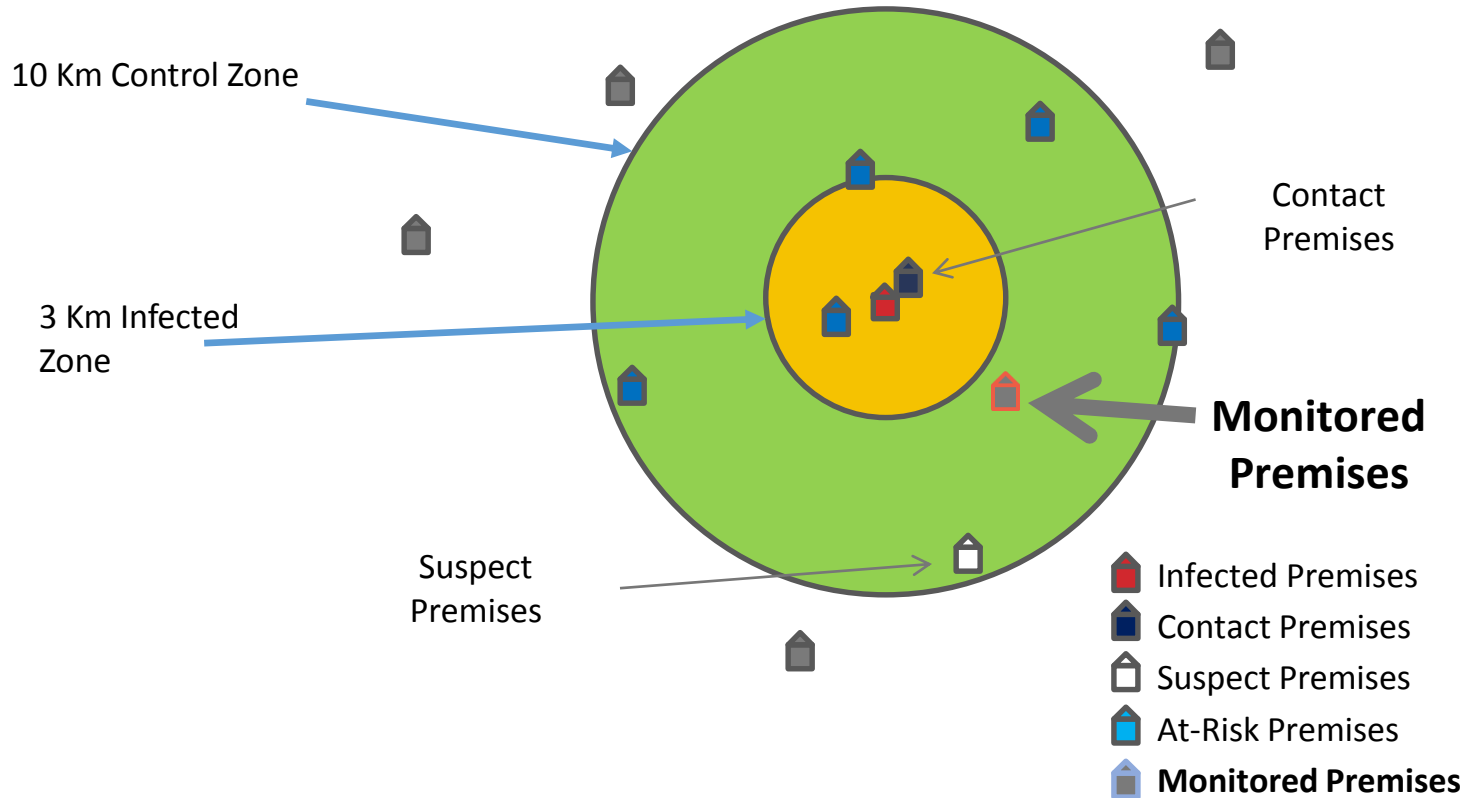


Steps in Response to HPAI—What if HPAI Visits NC?

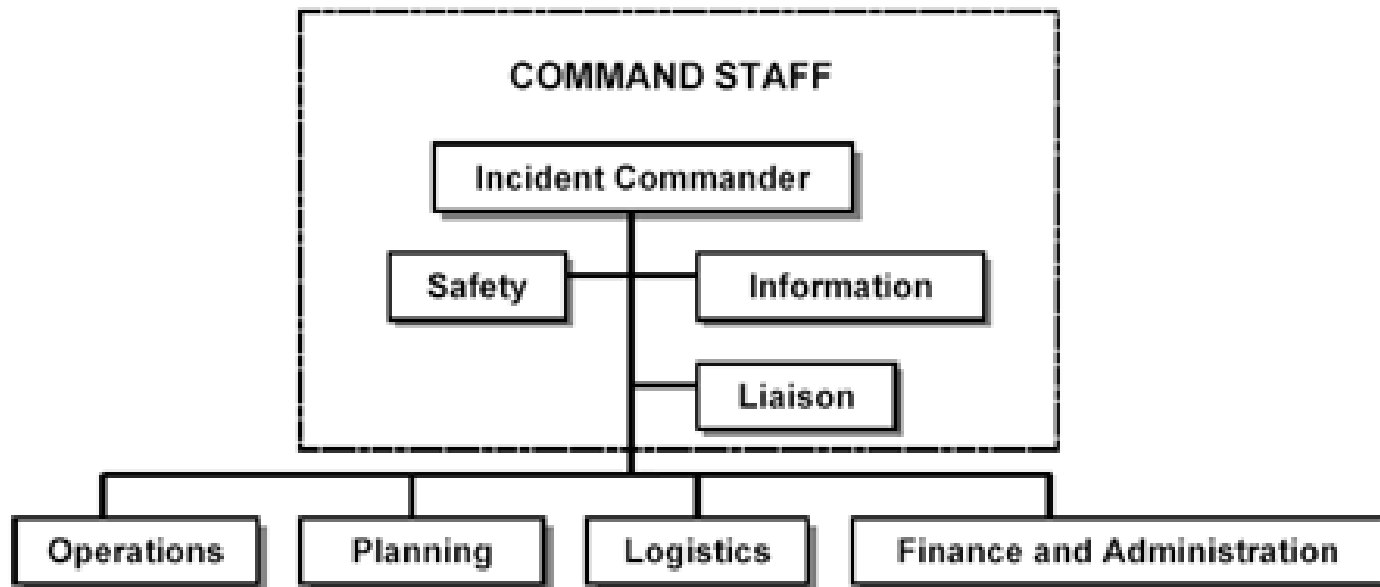
- Isolate the Farm—Quarantine
- Appraisal—Fair Market Value for Flocks
- Depopulate—Stamping Out
- Disposal
- Clean and Disinfect Houses
- Inspect to verify—State or Federal official
- Repopulate in Consultation with USDA/State

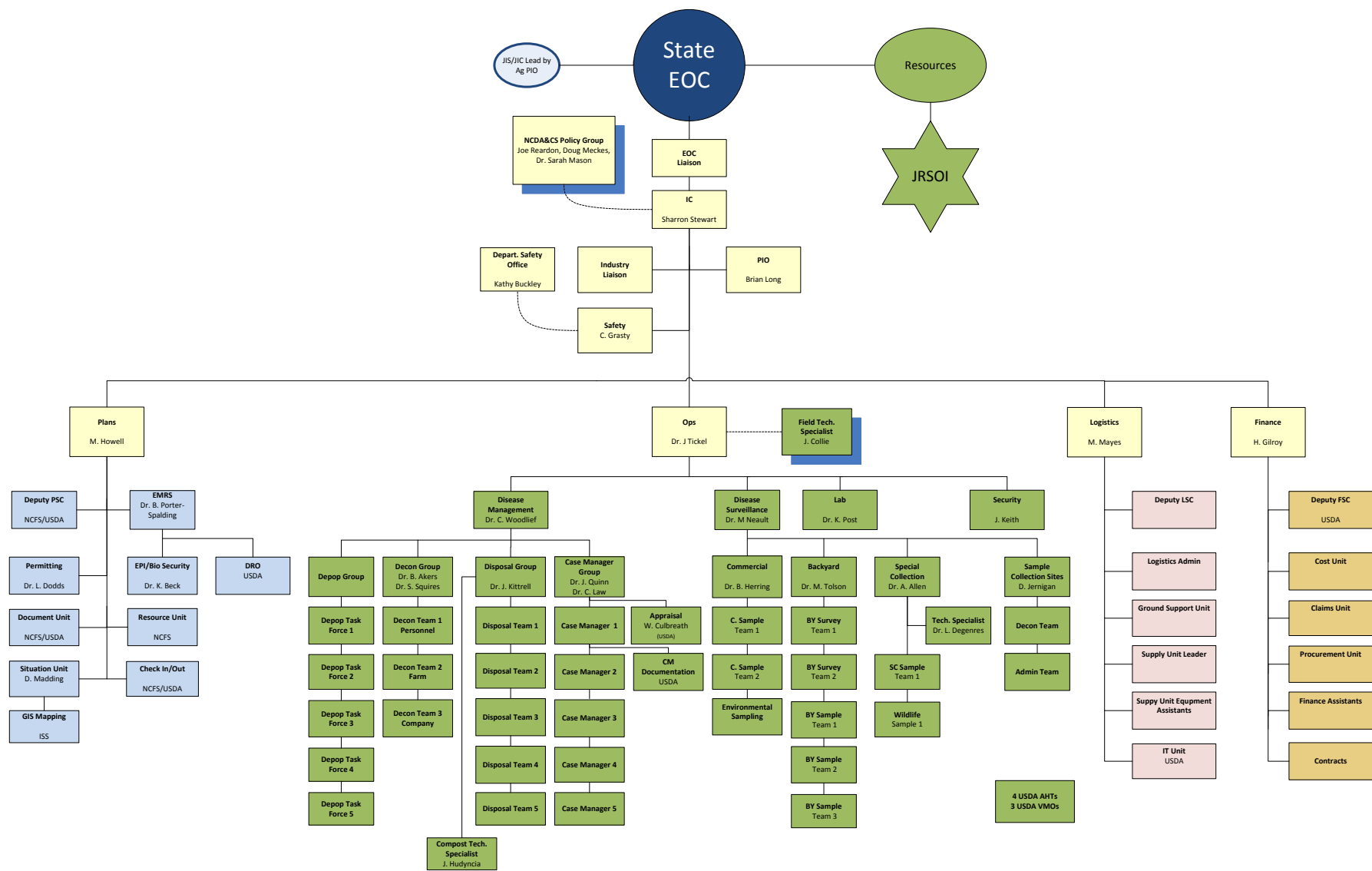


The Control Zone



Incident Command Structure





Depopulation

- Foaming
- CO₂
- VSD



Personal Protective Equipment (PPE)

- Tyvek coveralls
- Full face or N95 respirator
- Gloves
- Boots
- Goggles



Disposal Methods

- Composting
- Burial—pre-approved site required for commercial flocks
- Incineration
- Rendering—not likely
- Landfill—not likely
- Alkaline Hydrolysis-may be available

Cleaning and Disinfection

- Once house is empty of compost/birds, dry clean and/or wet clean, then disinfect (may be chemical or heat), if chemically disinfect, must then allow house to dry
- Swab house to assure no live virus present—21 day wait
- Houses not able to be cleaned lie fallow 120 days plus testing (requires summer months in fallow period)
- USDA developing flat rate for virus elimination—\$ per bird basis—this should be available very soon

Restocking Previously Infected Premises

- Has the protocol been followed?
- Negative environmental tests?
- What else is happening nearby?
- Are additional biosecurity requirements needed for the farm to function safely in the future?
- USDA and NCDA&CS must agree—if restock against advice, no indemnity available if flock breaks with HPAI

Preparedness—A NC Partnership

Partners on the Incident Management Team

- **NCDA&CS**—Department-wide
- **USDA**—Local, District and National
- **NC Public Health**-- Responder and Community Health support-testing and treatment; monitoring pre/post deployment of responders
- **NCDEQ**--North Carolina Department of Environmental Quality—SME for environmental protection—Disposal and Decon control
- **NCEM**- -North Carolina Emergency Management--support local operations and manage logistics for Equipment, Carbon Source, CO2 and Personnel support

Pre-Event Preparations

- Establishing Departmental PPE Guidelines for Inspectors
 - Reducing risk of flock exposure to HPAI through normal NCDA&CS activities—set required levels of PPE and increased biosecurity actions based upon risk assessments
- Ban of Bird shows and sales August 15-January 15
- Early meetings held with partners and industry
- Request for NCDA&CS volunteer responders

Pre-Event Preparations

- Training of Volunteer Responders—November 18
 - Fit tested for positions requiring use of N95 Respirators
 - Donning and Doffing PPE
 - Position Specific Overviews
 - Backyard and Small Flocks
 - Biosecurity Officers
 - Case Managers
 - Decon
 - Disposal
 - Foam Task Force
 - Sample Collection and Materials Receiving Sites

Equipment- Depopulation and Decon

Foam Units- total of 14 in State Cache; industry has others

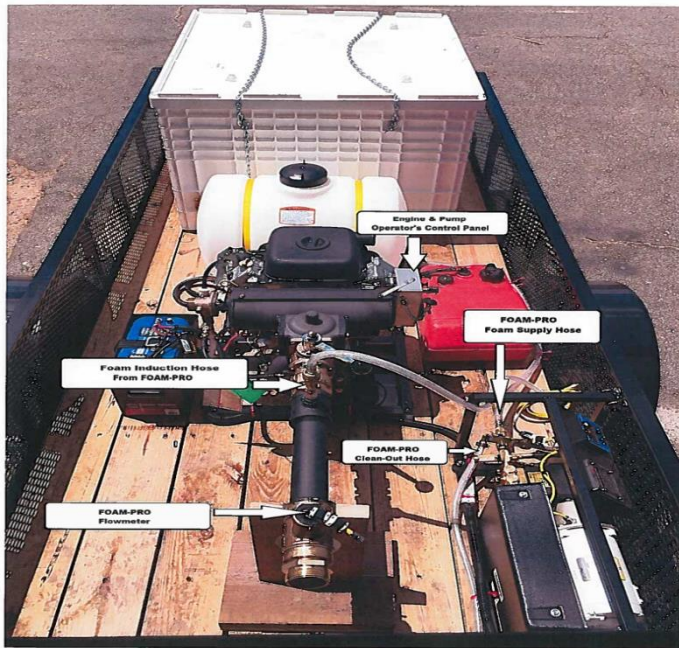
- Class A fire fighting foam
- Birds are usually depopulated within 5 minutes
- Pre-positioned foam in Asheville, Lenoir, Rockingham, Goldsboro and Rocky Mount
- Outfitting of 10 Forest Service pumper trucks for foaming
- Propak foamers for small flocks

Decon Units

- Power wash, hot water and foam-
- Citric acid, Bleach and Virkon, Quats

Equipment

- Depop



- Decon



Large Water Tender



Retro Fitting Forestry



Pro Tech- Backyard / Small Flock Units



Sample Collection and Materials Receiving Sites

- 8 locations – Morganton, Statesville, Elkin, Monroe, Rose Hill, Carthage, Goldsboro, Nashville, and remote near Rollins
- Surveillance and Movement Samples
- Courier into Rollins Lab
- Broth tubes and other materials for responders, if needed

Tabletop Exercise of Incident Management Team—December 8

- Simple Scenario
- Engagement of partners to work through possible problems
- Many “What ifs?”



Regional Industry Meetings for Response Details

- December 4—Mount Olive
- December 11—Rocky Mount
- December 15—Monroe
- January 14—Statesville

Focus will be permitting and surveillance—lab capacity and timing of samples to assure business continuity.

Questions? Thank You!

